

Cabilly *et al.*  
Serial No. 10/091,430

Docket No. IVGN 382

### AMENDMENTS

#### Claims

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as canceled.

#### Claims Listing

Claims 1-72 (Canceled)

73. (Currently Amended) An apparatus for conducting electrophoresis therein, the apparatus comprising:

a body of separating gel;

a cathode electrically coupled to a first end of said body of separating gel; and

an anode comprising an electrochemically ionizable metal, wherein said anode is disposed in a semi-solid ion reservoir containing a buffer, wherein said semi-solid ion buffer reservoir is disposed at a second end of said body of separating gel and is electrically coupled to said body of separating gel, wherein said ~~semi-solid ion reservoir and said buffer~~ comprises an amine and a Zwitter ion, and wherein said buffer inhibits ~~are configured for~~ retarding the migration of ions of said electrochemically ionizable metal into said body of separating gel, during said electrophoresis.

74. (Currently Amended) The apparatus according to claim 73 wherein said cathode, said anode, said body of separating gel and said semi-solid ion buffer reservoir are disposed within a substantially closed cassette.

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75. (Previously presented) The apparatus according to claim 73 wherein said electrochemically ionizable metal of said anode is copper.

76. (Previously presented) The apparatus according to claim 73 wherein said cathode comprises a metal selected from copper and aluminum.

77. (Canceled).

78. (Currently amended) The apparatus according to claim ~~77~~ 73 wherein the pK of said amine is lower than that of said Zwitter ion by 0.9-2 pH units.

79. (Currently amended) The apparatus according to claim ~~77~~ 73 wherein said buffer is selected from,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and N-tris[hydroxymethyl]methylglycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and N,N-bis[2-hydroxyethyl]glycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and Glycylglycine,

a combination of Tris and Glycine, and

a combination of amino methyl propanol and proline.

80. (Previously presented) The apparatus according to claim 73 wherein said body of gel is selected from a polyacrylamide based gel and an agarose based gel.

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81. (Currently amended) The apparatus according to claim 73, wherein the migration of ions of said electrochemically ionizable metal during said electrophoresis does not exceed the limits of said semi-solid reservoir.

82. (Previously presented) The apparatus according to claim 73 wherein said body of separating gel comprises at least one sample well.

83. (Currently Amended) A method for constructing an apparatus for conducting electrophoresis therein, the method comprising:

providing a body of separating gel;

providing a cathode electrically coupled to a first end of said body of separating gel; and

providing an anode comprising an electrochemically ionizable metal, wherein said anode is disposed in a semi-solid ion reservoir containing a buffer, wherein said semi-solid ion buffer reservoir is disposed at a second end of said body of separating gel and is electrically coupled to said body of separating gel, wherein said ~~semi-solid ion reservoir and~~ said buffer comprises an amine and a Zwitter ion, and wherein said buffer inhibits and said ~~retarding~~ the migration of ions of said electrochemically ionizable metal into said body of separating gel, during said electrophoresis.

84. (Currently Amended) The method according to claim 83 and wherein said anode, said cathode, said body of separating gel and said semi-solid ion buffer reservoir are disposed within a substantially closed cassette.

85. (Previously presented) The method according to claim 83 wherein said electrochemically ionizable metal of said anode is copper.

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86. (Previously presented) The method according to claim 83 wherein said cathode comprises a metal selected from copper and aluminum.

87. (Canceled).

88. (Currently Amended) The method according to claim ~~87~~ 83 wherein the pK of said amine is lower than that of said Zwitter ion by 0.9-2 pH units.

89. (Currently Amended) The method according to claim ~~87~~ 83 wherein said buffer is selected from,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and N-tris[hydroxymethyl]methylglycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and N,N-bis[2-hydroxyethyl]glycine,

a combination of bis[2-hydroxyethyl]iminotris[hydroxymethyl]methane and Glycylglycine,

a combination of Tris and Glycine, and

a combination of amino methyl propanol and proline.

90. (Previously presented) The method according to claim 83 wherein said body of gel is selected from a polyacrylamide based gel and an agarose based gel.

91. (Currently amended) The method according to claim 83 wherein the migration of ions of said electrochemically ionizable metal during said electrophoresis does not exceed the limits of said semi-solid ion reservoir.

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92. (Previously presented) The method according to claim 83 wherein said body of separating gel comprises at least one sample well.

93. (new) The apparatus of claim 73, wherein said Zwitter ion comprises a carboxyl group.

94. (new) The method of claim 83, wherein said Zwitter ion comprises a carboxyl group.